UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

Note to Reader

Background: As part of its effort to involve the public in the implementation of the Food Quality Protection Act of 1996 (FQPA), which is designed to ensure that the United States continues to have the safest and most abundant food supply. EPA is undertaking an effort to open public dockets on the organophosphate pesticides. These dockets will make available to all interested parties documents that were developed as part of the U.S. Environmental Protection Agency's process for making reregistration eligibility decisions and tolerance reassessments consistent with FQPA. The dockets include preliminary health assessments and, where available, ecological risk assessments conducted by EPA, rebuttals or corrections to the risk assessments submitted by chemical registrants, and the Agency's response to the registrants' submissions.

The analyses contained in this docket are preliminary in nature and represent the information available to EPA at the time they were prepared. Additional information may have been submitted to EPA which has not yet been incorporated into these analyses, and registrants or others may be developing relevant information. It's common and appropriate that new information and analyses will be used to revise and refine the evaluations contained in these dockets to make them more comprehensive and realistic. The Agency cautions against premature conclusions based on these preliminary assessments and against any use of information contained in these documents out of their full context. Throughout this process, If unacceptable risks are identified, EPA will act to reduce or eliminate the risks.

There is a 60 day comment period in which the public and all interested parties are invited to submit comments on the information in this docket. Comments should directly relate to this organophosphate and to the information and issues available in the information docket. Once the comment period closes, EPA will review all comments and revise the risk assessments, as necessary.

These preliminary risk assessments represent an early stage in the process by which EPA is evaluating the regulatory requirements applicable to existing pesticides. Through this opportunity for notice and comment, the Agency hopes to advance the openness and scientific soundness underpinning its decisions. This process is designed to assure that America continues to enjoy the safest and most abundant food supply. Through implementation of EPA's tolerance reassessment program under the Food Quality Protection Act, the food supply will become even safer. Leading health experts recommend that all people eat a wide variety of foods, including at least five servings of fruits and vegetables a day.

Note: This sheet is provided to help the reader understand how refined and developed the pesticide file is as of the date prepared, what if any changes have occurred recently, and what new information, if any, is expected to be included in the analysis before decisions are made. **It is not meant to be a summary of all current information regarding the chemical.** Rather, the sheet provides some context to better understand the substantive material in the docket (RED chapters, registrant rebuttals, Agency responses to rebuttals, etc.) for this pesticide.

Further, in some cases, differences may be noted between the RED chapters and the Agency's comprehensive reports on the hazard identification information and safety factors for all organophosphates. In these cases, information in the comprehensive reports is the most current and will, barring the submission of more data that the Agency finds useful, be used in the risk assessments.

Jack E. Housenger, Acting Director
Special Review and Reregistration Division

HED DOC. NO. 013752

September 28, 1999

MEMORANDUM

SUBJECT: ***MEVINPHOS*** **-** Report of the FQPA Safety Factor Committee

FROM: Brenda Tarplee, Executive Secretary
FQPA Safety Factor Committee
Health Effects Division (7509C)

THROUGH: Ed Zager, Chairman
FQPA Safety Factor Committee
Health Effects Division (7509C)

TO: William Hazel, Risk Assessor
Reregistration Branch 1
Health Effects Division (7509C)

PC Code: 015801

The FQPA Safety Factor Committee met on May 03, 1999 and again on August 23, 1999 to evaluate the hazard and exposure data for mevinphos and recommended that the FQPA Safety Factor (as required by Food Quality Protection Act of August 3, 1996) be retained at 10x when assessing chronic dietary exposure and reduced to 3x for when assessing acute dietary exposure to this pesticide.

I. HAZARD ASSESSMENT

(*Memorandum:* V. Dobozy to F. Fort dated April 13, 1999; HED Doc. No. 013334.)

A. Adequacy of the Toxicology Database

The toxicology database for mevinphos is **incomplete**. HIARC has required that a subchronic neurotoxicity study in rats and a developmental neurotoxicity study in rats (with an expanded protocol) be conducted with mevinphos (HED Doc. No. 013334).

B. Determination of Susceptibility

There was no evidence of increased susceptibility in developing fetuses in the rat and rabbit prenatal developmental studies.

However, there was qualitative evidence of increased postnatal susceptibility in the range-finding study for the two-generation reproduction study. In this study, increased pup mortality at postnatal days 21-28 was observed at the same dose which produced less severe parental toxicity. These findings were considered evidence of increased qualitative susceptibility in the offspring. Based on the results of this range-finding study, direct administration of mevinphos to the F1 pups in the definitive study was delayed from postnatal day 21 to postnatal day 28. This delay in dosing resulted in an increase in early postweaning survival and ensured that sufficient F1 animals were continued into the second generation; however, it is also the reason that increased susceptibility was not observed in the definitive study.

C. Requirement for a Developmental Neurotoxicity Study

The HIARC recommended that a developmental neurotoxicity study in rats be conducted with mevinphos and that it be designed to extend the postnatal treatment period for offspring and to evaluate cholinesterase inhibition in the offspring (HED Doc. No. 013334).

II. EXPOSURE ASSESSMENTS

A. Dietary (Food) Exposure Considerations

(*Correspondence:* W. Hazel to E. Zager dated August 19, 1999.)

Mevinphos is an organophosphate pesticide. All U.S. uses were withdrawn in 1995, however, use on the following crops is being supported for import purposes only: broccoli, cabbage, celery, cauliflower, cucumbers, grapes, lettuce, melons, peppers, peas (succulent), spinach, squash (summer), strawberries, and tomatoes. Some of these commodities are considered to be highly consumed by infants and children. The use of mevinphos will occur late in the growing season resulting in detectable residues on these

imported commodities. Tolerances are currently established for residues of mevinphos, *per se*, on the crops listed above at levels ranging from 0.2 to 2.0 ppm (40 CFR 180.157). Tolerances in plants are currently expressed in terms of the cis- and trans- isomers of the parent compound. HED concluded that there is no reasonable expectation for mevinphos residues of concern to occur in livestock.

Of the crops being supported for importation, all except peppers, celery, and squash have Codex MRLs (0.05-1 ppm) for combined residues of the cis- and trans- isomers of mevinphos. However, with the exception of cabbage, all MRLs were proposed for revocation (JMPR, 1997).

Data sources for mevinphos include residue data from field trial studies and monitoring data from the FDA surveillance program and the USDA Pesticide Data Program. Information on percent crop imported has also been provided from the Biological and Economic Analysis Division (BEAD).

Dietary food exposure analyses will be performed to estimate the acute and chronic dietary risk for mevinphos using the Dietary Exposure Evaluation Model (DEEM). DEEM combines pesticide residue data with food consumption data to estimate dietary (food only) exposure. The chronic and acute analyses could be refined using anticipated residue estimates based on available monitoring data and field trials as well as percent crop imported information. The result would be a more realistic estimate of the dietary exposure expected from the application of mevinphos to food commodities.

B. Dietary (Drinking Water) Exposure Considerations

(*Correspondence:* W. Hazel to E. Zager dated August 19, 1999.)

A drinking water exposure assessment was not performed for mevinphos since there are no domestic uses for this pesticide and therefore, no potential exists for ground and/or surface water contamination.

C. Residential Exposure Considerations

(*Correspondence:* W. Hazel to E. Zager dated August 19, 1999.)

There are currently no registered residential uses for mevinphos.

III. SAFETY FACTOR RECOMMENDATION AND RATIONALE

A. Recommendation of the FQPA Safety Factor

The Committee recommended that the FQPA safety factor for protection of infants and children (as required by FQPA) be retained at 10x when assessing chronic dietary exposure and reduced to 3x for when assessing acute dietary exposure to this pesticide.

B. Rationale for Requiring the FQPA Safety Factor

The FQPA Safety Factor Committee concluded that a safety factor is required for mevinphos since:

- The toxicology database for mevinphos is incomplete (subchronic neurotoxicity study in rats is lacking);
- A developmental neurotoxicity study in rats (with an expanded protocol) has been required by the HIARC which may provide additional information on possible adverse effects of mevinphos on the developing organism; and
- There is evidence of qualitative increased postnatal susceptibility in the range-finding study for the two-generation reproduction study.

C. Application of the Safety Factor - Population Subgroups / Risk Assessment Scenarios

When assessing **Acute Dietary Exposure,** the safety factor can be **Reduced to 3x** and **applied only to Females 13-50; and to Infants and Children Subgroups** since no increased susceptibility was observed following *in utero* exposure to rats or rabbits in the developmental studies (which could potentially occur after a single dose); and the concern for this exposure scenario is the uncertainty associated with the data gap for the developmental neurotoxicity study (as opposed to the increased susceptibility seen in offspring after repeated oral exposures in the range-finding study for the 2-generation reproduction study). The developmental neurotoxicity study is designed to evaluate neurotoxic effects on the mother and fetus from the time of implantation of the fertilized egg into the wall of the uterus through birth. This study may provide additional information which could be used to further characterize the effects of mevinphos on the developing organism.

When assessing the **Chronic Dietary Exposure,** the safety factor should be **Retained at 10x** for **All Population Subgroups** since there is concern for increased susceptibility of the young demonstrated after repeated oral exposures in the range-finding study for the 2-generation reproduction study (which is designed to assess the effects of the pesticide on male and female reproductive processes, from egg and sperm production and mating through pregnancy, birth, nursing, growth and development, and maturation); and since there are data gaps in the toxicology data base for the subchronic neurotoxicity study and the developmental neurotoxicity study in rats. As previously stated, the developmental neurotoxicity study may provide additional information which could be used to further characterize the effects of mevinphos on the developing organism.